Defense Information Infrastructure (DII)

Common Operating Environment (COE)

Statement of Functionality (SOF)
for the
METCAST Client (METCAST) Segment

27 July 1999

Prepared for:
Space and Naval Warfare Systems Command
Environmental Systems Program Office
(SPAWAR PMW-185)

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1   SCOPE

1.1   Identification

This document describes the functionality of the METCAST Client (METCAST) Segment of the METCAST data distribution software, Release 1.1, developed by Fleet Numerical Meteorology and Oceanography Center (FNMOC), Monterey, CA.

1.2   System Overview

METCAST is a standards-based, request-reply and subscription (channel) system for distributing weather information over the Internet using Hyper-Text Transfer Protocol (HTTP) and Multipurpose Internet Mail Extensions (MIME). The METCAST Client Segment includes a graphical user interface (GUI) to allow the user to select the products to be retrieved and the frequency and types of retrievals, and a retriever process that establishes communication with a METCAST server, submits a request for the data requested, and delivers the reply to the local user. The METCAST Server comprises a separate segment.

1.3   Document Overview

Section 2 of this document describes the METCAST system in greater detail to afford some insights into the role filled by the MDCHNL segment. Section 3 describes the functionality of the METCAST Client segment.

2   METCAST FUNCTIONALITY OVERVIEW

METCAST is a standards-based, request-reply and subscription system used to transmit data across the web using HTTP. METCAST uses a client-server architecture in which a server, connected to a METOC database, publishes a dynamic product list showing all data currently in the system and all channels available through the server. Clients subscribe to the product list automatically when their connection to a server is active, and thus continually maintain a list of data available on the system. A client may be connected to multiple servers, and will maintain a separate product list for each server.

When a request is scheduled, the METCAST Client formulates a request message and forwards it via Hyper-Text Transfer Protocol (HTTP) to the server(s) from which the data are requested. The server checks its database to find out whether it has any new data to fill the request. If not, it returns a message to that effect. If there is new data, the server extracts the data from its database, packages it, and returns it to the client. Figure 2 shows this data flow.
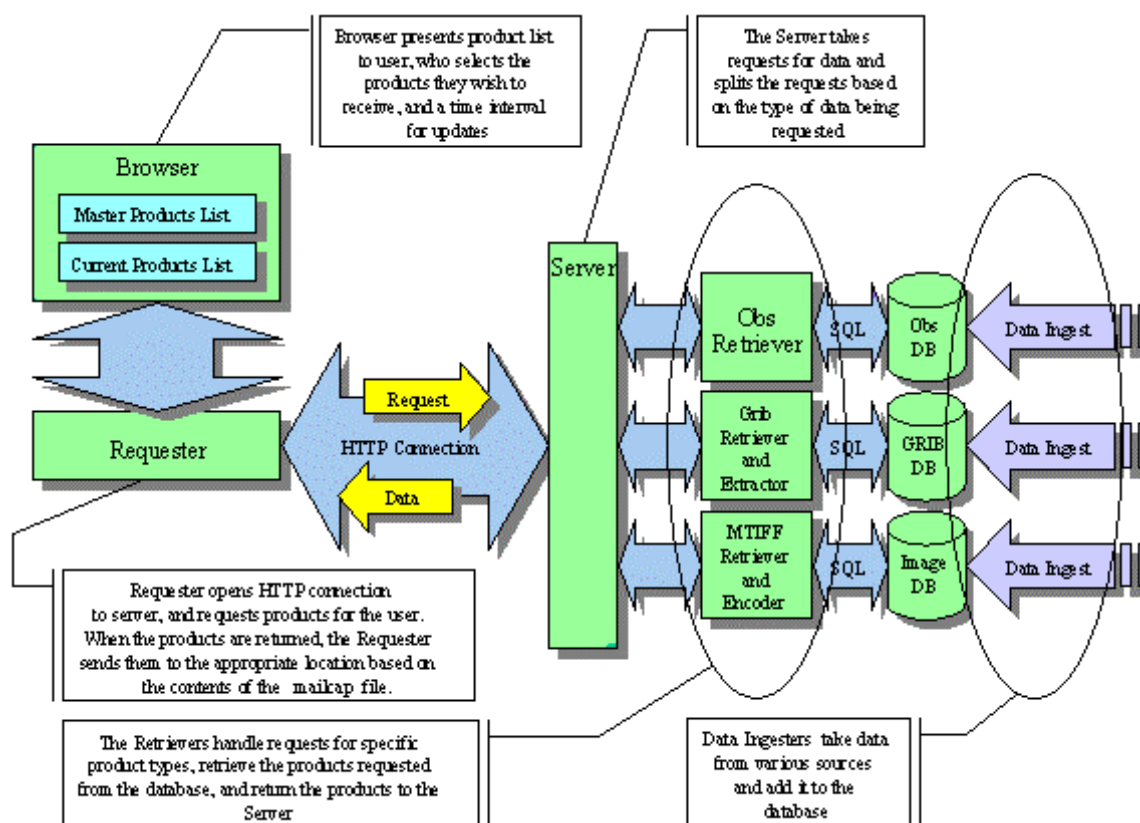
Figure 2-1. METCAST Data Flow

Figure 3 shows the connectivity between FNMOC, Regional Centers, and ships, and the use of METCAST and local applications to constantly update the TEDS databases at remote sites to

ensure that the highest quality environmental data are available to tactical applications and forecasters.
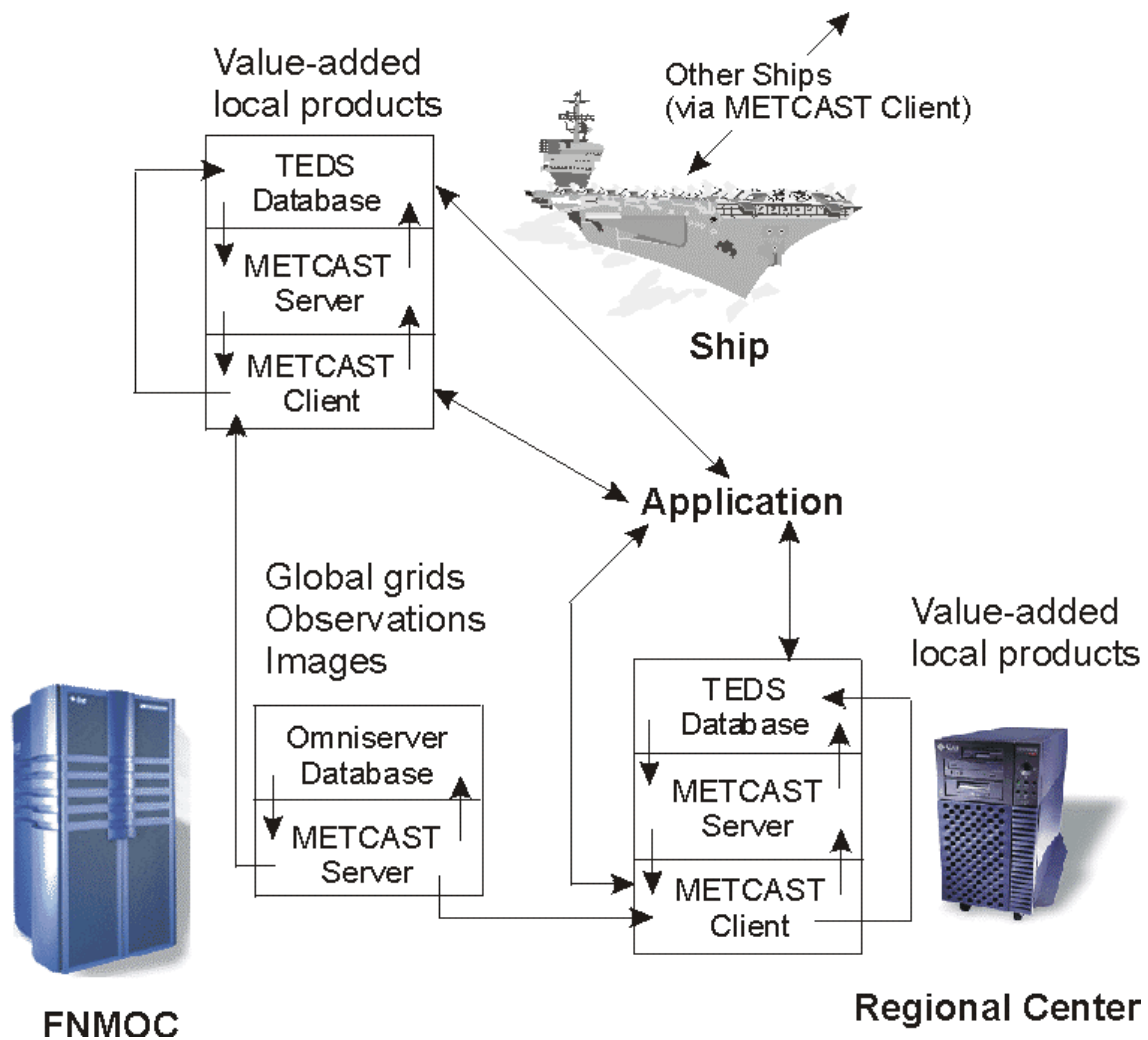
Figure 2-2. METCAST Connectivity

3 METCAST CLIENT SEGMENT FUNCTIONALITY

The METCAST Client provides a graphical user interface (GUI) that allows users to:

- Define geographical areas of interest in Mercator or polar stereographic projections, or select from available satellite areas or special areas (such as areas covered by regional models).

- Define a product suite for each area of interest defined. Products are selected from a Dynamic Product List that is constantly updated by each server, so that the user only sees those products that are actually available for download at the time of selection.

- For each server, specify the scheduling options for each type of data (grids, observations, imagery, and channels) requested. Products may be retrieved on demand, at scheduled times, or at specified intervals. The user may also specify the number of images to be held on the system and the maximum age of the products to be retrieved.

- Schedule areas of interest. The system will not retrieve any data for an area until it is scheduled (activated). Once scheduled, the area may be unscheduled at any time to deactivate retrievals.

- Monitor and interact with retrievals in progress. A Java-based Retriever Monitor shows the status of active and completed retrieval sessions, and allows the user to start a stopped or sleeping session, stop an active or sleeping session, or remove a session entirely. An Area Status function is also available to show in real time the products retrieved for an area.

- To view, in conjunction with Joint METOC Viewer (JMV), all downloaded data on a map background or, for upper air data, a Skew-T, Log P diagram.

When a request is scheduled, the METCAST Client formulates a request message and forwards it via Hyper-Text Transfer Protocol (HTTP) to the server(s) from which the data are requested. The server checks its database to find out whether it has any new data to fill the request. If not, it returns a message to that effect. If there is new data, the server extracts the data from its database, packages it, and returns it to the client. The client routes incoming data to files and/or helper applications as specified in the *mailcap* file. Helper applications perform further processing on the incoming data, such as decoding it and ingesting it into a local database.

METCAST Channels allow users to publish and subscribe to information of any origin and format. Channels may be used to distribute updates to METCAST itself and JMV, to send presentations or documents between users, and to automatically retrieve certain information (the

dynamic product list, for example, is retrieved via a channel, as are tropical cyclone warnings and significant meteorological bulletins (SIGMETS)). Individual channels can be assigned permissions, allowing only specified users to access them. This provides an efficient means for distributing information to limited groups of users. An on-scene commander, for example, could establish a channel limited to participants in a particular operation that can be used to exchange information pertaining to that operation. A GUI is provided in the METCAST Client to allow users to subscribe to channels, specify the frequency of retrievals of channel information, and schedule channels. The GUI also permits a user to publish any file to any channel to which he/she has access.